

XVIII. *Notes on Maternal Instinct in Rhynchota.* By
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[Read March 16th, 1904.]

PLATE XXVIII.

MR. KIRKALDY'S very interesting notes upon this subject, in the "Entomologist," remind me that about the month of June, 1901, I took a large oval, flat, and pale-green bug upon one of our so-called "Bitter Barks" (*Petalostigma quadriloculare*). Adhering to her abdomen underneath were three or four young ones, certainly several days old; these dropped off several hours after, when placed in the killing bottle. Subsequently I sent these specimens, with some miscellaneous material, to Mr. W. W. Froggatt, supplying him with the particulars mentioned; but as he did not even refer to the bugs when acknowledging the parcel, I naturally assumed that my discovery was unimportant. There were more of the insects upon the trees at the time, but I was not interested in them then, and contented myself with the single old one. I searched the trees carefully later, but the long-continued drought of 1901-2 appears to have caused the extinction of the species here. However, I determined to keep a sharp look-out in the hope of meeting with another affectionate bug, and ere long I was rewarded by noticing a female of the large, rather common, and widely-distributed species, *Tectocoris lineola*, var. *banksi*, Don., standing over a cluster of about sixty eggs. I observed her closely for several days, and then took her and the ova home. At the end of a fortnight she abandoned the eggs, and flew about my room, but none hatched; they had been interfered with before I took them, some had disappeared and others seemed to have been punctured. Meantime I had discovered a patch of shrubs, in a locality which I rarely visited, where these bugs were fairly plentiful, amongst them being about fifteen females protecting their egg-clusters. Eventually, June 28th, 1903, I found one bug depositing, and

watched her place several eggs against a number already laid. I paid particular attention to this insect, visiting her myself every second or third day, and sending a boy to the spot when I did not go. The twenty-third day was missed, but upon the twenty-fourth (July 22nd, 1903) the little ones were out, and grouped a couple of inches above the egg-shells, and the parent had moved a little below; this is quite usual, as the young ones begin to break through, the mother backs an inch or so away from the egg mass and stays there for some hours (long after the last egg has hatched), when she departs, leaving the small bugs to take care of themselves. The young are scarlet when they emerge, but within a couple of hours they become banded with blue-black, in a few days they have changed to almost wholly deep bluish-green, with several small, dull reddish patches; there is then little alteration in their colour until they are full grown.

The eggs number from about sixty to one hundred; they are of a rich salmon colour when deposited, but in a few days commence to assume a dull purplish tint. For some days the larvæ group in a mass when at rest, at times in a slightly conical heap, and keep much together until well grown.

Apparently the mothers never leave their eggs temporarily, any that I have met with unprotected were quite abandoned. At different times I had altogether about twenty mother bugs, and they generally remained faithful to their charges; when one did depart before the young emerged it was doubtless owing to my presence; for they were upon my table, and my coming and going, and various movements, naturally would have the effect of disturbing them. After leaving, a mother would not mount guard again, no matter how gently I induced her to walk upon the twig she had left.

It is absolutely certain that the "broody" bugs remain foodless during the whole period of three weeks or more of "sitting," they occupy the same position always, and various investigations have failed to reveal any punctures in the twigs in front of them; moreover, there were several mothers with eggs upon small trees close to the food plants, two of which were hard-wooded eucalypts, without tender shoots at the time; the sap of these, even if it were tapped by the beaks of the insects, would scarcely be to their taste. Two of the females which I

brought home were upon tough eucalyptus twigs, these and other twigs I allowed to become dry, but the mothers stayed on and the eggs duly hatched. June and July are our coldest months, but the bugs feed and move freely about, and cannot be called sluggish; they are more plentiful in the autumn and winter than during the summer. I have not seen one since August, it is now December. I shall endeavour to ascertain whether there are summer broods, and, if so, the length of time the eggs require to hatch out. Summer extends to the end of March.

As already stated the position of the insect never alters as she stands above the eggs—the forelegs are clasped around the twig in front of them, the third pair holds it just behind, and the middle pair clasps them about the centre, so that they are effectually shielded above; they are placed in rows all round the twig.

In approaching a sitting bug, or pushing any object near her, from the side, she inclines her body towards the threatening quarter, or exhibits much concern if the hands, say, are held near, and moved about her; it is most absurd to watch her determined efforts to shield the precious eggs; she sidles to the right or left, as the case may be, to meet the supposed danger, but no menacing in front or behind will induce her to move.

Though I have seen males in front of the sitting females, and evidently causing them annoyance, it did not appear that they ever attempted to interfere with the eggs, though it is quite likely that they were intent upon mischief. As I have frequently had ova of Hemiptera produce ichneumons, it may be that the patient protection afforded by these females is, in some measure, to keep these insects away; none of the eggs of this species which I had were parasitised.

The insects are generally found upon soft-wooded or juicy-leaved plants, and they specially relish those belonging to the Malvaceæ, the common cultivated "Rosella" being often attacked by them, so that they may become a pest in gardens occasionally.

To illustrate these notes I have selected various mother bugs and eggs *in situ*, empty egg-shells, larvæ emerging, just out, and out for two hours, also larvæ of various ages, and several of the perfect insects, showing their extraordinary variability of colour and markings.

EXPLANATION OF PLATE XXVIII.

- FIG. 1. *Tectocoris lineola*, var. *banksi*, Don., ♀, "brooding" over a cluster of eggs.
2. " " " , eggs and recently emerged larvæ.
3. " " " , empty egg-shells, and larvæ two hours old.
- 4-8. " " " larvæ of various ages.
9. " " " ♀, upper view of the insect shown in fig.1.
- 10-14. " " " ♂, showing the great variability in colour.